CENTERS FOR DISEASE CONTROL

MMWR

MORBIDITY AND MORTALITY WEEKLY REPORT

February 7, 1986 / Vol. 35 / No. 5

Epidemiologic Notes and Reports

Homicide — Los Angeles, 1970-1979

Since the mid-1950s, the risk of homicide in the city of Los Angeles, California, has increased sixfold (*1*). The largest 10-year absolute increase (84.0%) occurred from 1970 to 1979, when rates rose from 12.5 per 100,000 population to 23.0/100,000.

During this decade, 4,950 criminal homicides* occurred in Los Angeles, an average rate of 17.1 homicides/100,000 population (*2*). Homicide victims were most likely to be male and young and of a minority group. Males were almost four times more likely to become homicide victims (27.0/100,000) than were females (7.3/100,000). The homicide rate for males more than doubled during the decade, rising from 19.5 per 100,000 in 1970 to 39.7/100,000 in 1979, compared with an increase of from 6.0/100,000 to 6.6/100,000 for females. Age-specific homicide rates increased in every age category, except persons under age 15, peaking at 26.9/100,000 population in the 25- to 34-year-old group.

Blacks and Hispanics were 5.6 and 2.3 times more likely, respectively, than white non-Hispanics to become homicide victims. Blacks were at greatest risk of victimization, with a rate of 45.6/100,000 population. The greatest absolute increase in homicide rates occurred among blacks, whose rates rose from 35.7/100,000 in 1970 to 61.3/100,000 in 1979. However, the highest percentage increase—over 166.7%—occurred among Hispanics, from 11.1 in 1970 to 29.6 in 1979.

For specific race/ethnic groups by sex, the risk of homicide was greatest for black males, followed by Hispanic males, and black females (Figure 1). Hispanic males were 7.3 times more likely than Hispanic females to be victimized, while black males and white non-Hispanic males were 4.3 and 2.3 times more likely to be victimized than black females and white non-Hispanic females, respectively. Relative differences in race/sex-specific homicide rates were unchanged after rates were age-adjusted.

The increasing homicide rate in Los Angeles during the 1970s can be attributed almost entirely to changes in homicide rates among black and Hispanic males (Figure 2). Rates for white non-Hispanic males were only slightly higher in the latter half of the decade than in the first half, and there was no consistent upward trend. The rates for white non-Hispanic, black, and Hispanic females did not change substantially.

In 56.6% of homicides, victims were killed with some type of gun; handguns were used in 79.3% of these cases. In 23.3% of cases, cutting instruments were used; 10.6% of victims were bludgeoned to death; and 9.6% were killed by other means. Verbal arguments most commonly preceded homicides (32.7% of cases). During the 10-year period, 48.4% of homicides occurred in homes.

*Criminal homicide is defined as death due to injuries illegally inflicted by another person with intent to injure or kill, by any means. Ascertainment of a case as a criminal homicide was based on the results of the investigation conducted by the Los Angeles Police Department. These homicides do not include killings committed by police officers in the line of duty and those committed by citizens in self-defense.

Homicide – Continued

Most homicide victims in Los Angeles knew their assailants. In 61.2% of cases, the offender was a member of the victim's family or a person otherwise acquainted with the victim. However, the distribution of victim-offender relationships was different for men and women (Figure 3). A total of 42.7% of women were killed by a family member or intimate acquaintance, compared with 14.9% of men. Women were most likely to be killed by their husbands; men, by friends or acquaintances.

Blood-alcohol tests were completed for 4,092 (82.7%) of the 4,950 homicide victims. Alcohol was detected in 46.0% of victims tested; in 30.2% of victims tested, blood-alcohol levels were 100 mg% or higher,† the legal level of intoxication in most states. Blood-alcohol presence varied markedly by race/ethnicity. Alcohol was detected in 57.0% of all Hispanic victims tested, 47.7% of blacks, 34.5% of white non-Hispanics, and 33.7% of persons in other race/ethnic groups.

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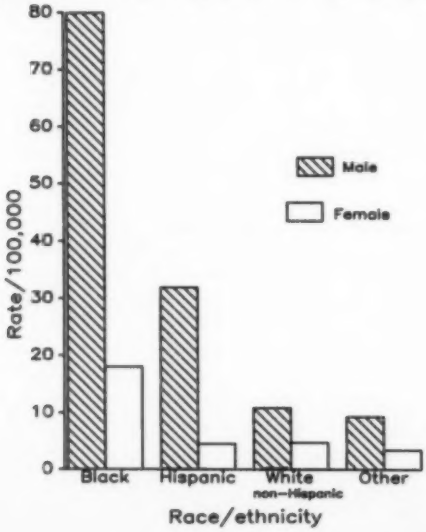
Editorial Note: The objectives of the Los Angeles study were to identify: (1) groups at greatest risk of homicide victimization; (2) situational and interpersonal characteristics associated with homicide; (3) changes in the risk of homicide victimization over time; (4) patterns of alcohol by homicide victims; and (5) potential approaches to homicide research and prevention. It is intended to serve as a model for epidemiologic analysis of homicide that can be replicated in state and community settings throughout the country.

†The level of alcohol in the blood is defined as milligrams of alcohol per 100 milliliters of blood and is expressed in terms of milligrams percent (i.e., mg%).

FIGURE 1. Age-adjusted homicide rate, by race/ethnicity and sex of victim — Los Angeles, 1970-1979



Homicide — Continued

FIGURE 2. Homicide rate for male victims, by race/ethnicity and year of death — Los Angeles, 1970-1979

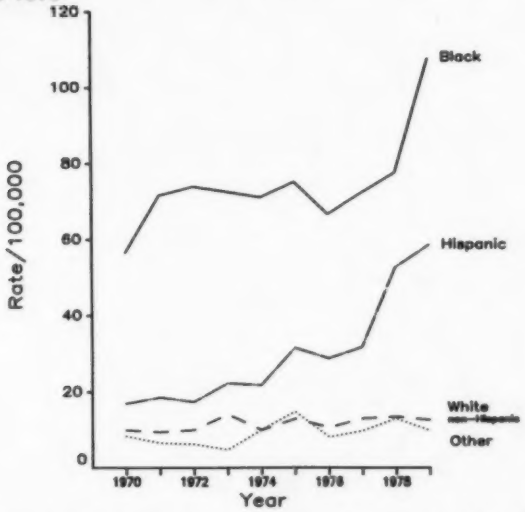
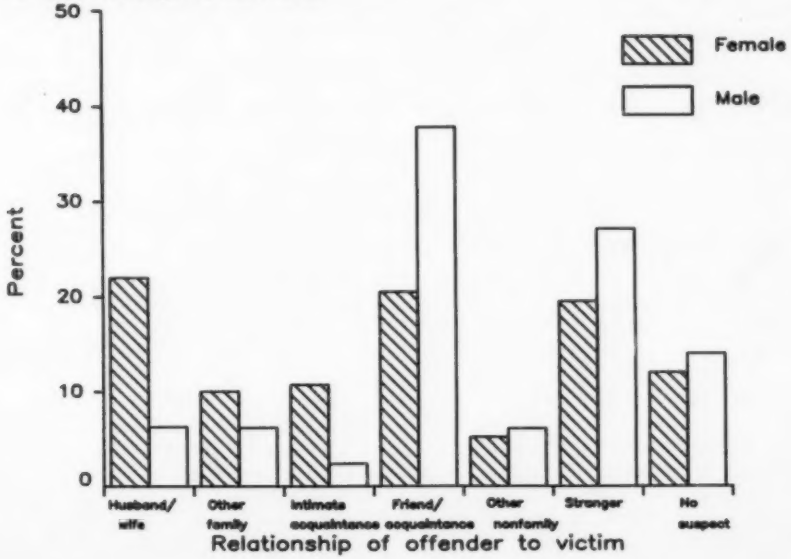


FIGURE 3. Percentage of homicides, by sex of victim and relationship of offender to victim — Los Angeles, 1970-1979



Homicide – Continued

Compared with rates for other major U.S. urban areas, homicide rates increased markedly in Los Angeles from 1970 to 1979. Between 1970 and 1978, the rate of increase for the Los Angeles/Long Beach Standard Metropolitan Statistical Area (SMSA) was much greater than in any of the other 25 most populous SMSAs in the United States (based on 1970 population estimates) (*3*). Although the exact causes for this increase are not clear, this pattern is primarily attributable to increasing homicide rates among black and Hispanic males between the ages of 15 and 44 years.

The pattern of highest overall homicide rates in Los Angeles among young black males is also characteristic of the United States as a whole and is supported by studies in other urban areas, including Philadelphia, Pennsylvania; Houston, Texas; Chicago, Illinois; and Atlanta, Georgia (*4-8*). The consistency with which these findings have been reported suggests that the determinants of these patterns are widespread throughout society, rather than associated with specific local environments or points in time. Numerous studies and reports have suggested that two such determinants of the high risk faced by blacks and other minority groups may be poverty and the subculture of violence (*8-11*).

This study confirmed previous findings that substantial numbers of victims and/or offenders involved in violent crimes consume alcohol before the crimes (*4,7,12-15*). While the Los Angeles study cannot establish alcohol as a risk factor for homicide, the results further document the strong relationship between patterns of alcohol use and characteristics of the victims (*16*). Information is needed on blood-alcohol levels in referent populations or in persons who are not homicide victims. Without such data, the prevalence of alcohol in homicide victims may only reflect alcohol consumption patterns in individuals or groups at increased risk of homicide for other reasons.

Neither this study nor official statistics collected by the criminal-justice and health-care systems link acts of criminal violence and resulting injuries to drug activity of victims or offenders. The term "drug activity" can apply to drug use by victims or offenders, as well as to the activities involved in distributing, buying, and selling drugs. Police in New York City examined this linkage and found that 24% of all homicides could be considered drug-related in 1981 (*17*). Thus, existing databases should be improved to enhance epidemiologic analysis of the associations between homicide and the illicit use, manufacture, or distribution of drugs.

Research has generally focused on the homicide event itself and has rarely addressed the processes that lead to homicide. In the context of family violence, more attention should be paid to the natural history of family abuse. Wife battering is characterized by recurrent injuries to and general medical complaints by the victim (*18,19*). However, the "battering syndrome" has only been rudimentarily described, and important questions remain to be answered concerning whether the severity of physical assaults escalates over time in the family context; how frequently assaults occur; whether abuse of children and the elderly is associated with spouse abuse; how victims seek help; and how frequently and with what consequences victims have prior contacts with criminal-justice institutions, social-service agencies, and health-care facilities for problems related to nonfatal abuse.

Additionally, knowledge about the frequency and nature of violence between friends and acquaintances could be improved. Young males in minority groups appear to be particularly vulnerable to homicide by friends or acquaintances, suggesting that the forces that account for racial discrepancies in homicide rates may have their greatest influence on violence between friends and acquaintances. Examining the socioeconomic and cultural context in which violence by friends or acquaintances occurs and the means of conflict resolution used by young minority males may be a useful starting point for understanding race/ethnic differences

Homicide — Continued

underlying this phenomenon. Topics to be considered are: whether arguments are more frequent among black friends and acquaintances or whether the likelihood of violent resolutions to arguments is greater; whether different race/ethnic groups resolve conflicts differently, and, if so, whether these means are related to the socioeconomic or cultural status of minority groups.

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Current Trends

Update: Influenza Activity — United States

Influenza B and influenza A(H3N2) viruses continue to circulate throughout the United States. For the week ending February 1, 13 states* and the District of Columbia reported widespread outbreaks of influenza-like illness, and 18 states† reported regional outbreaks.

*Colorado, Georgia, Idaho, Michigan, Minnesota, Nebraska, New Hampshire, New Jersey, North Carolina, Oklahoma, Pennsylvania, Washington, and West Virginia.

†California, Connecticut, Delaware, Illinois, Iowa, Kansas, Kentucky, Maryland, Mississippi, Missouri, Montana, Oregon, South Carolina, South Dakota, Texas, Vermont, Virginia, and Wisconsin.

Influenza — Continued

The preceding week, five states reported widespread outbreaks, and 13 states reported regional outbreaks.

Although influenza B viruses are more prevalent, there is evidence of at least one mixed outbreak. Beginning January 14, an outbreak of influenza-like illness was observed among students seen at the student health center at North Carolina State University in Raleigh. Influenza viruses were isolated from nine students tested from January 19 to January 21; seven type B viruses and two type A(H3N2) were identified. This is the first outbreak this season where both virus types B and A(H3N2) were isolated and raises the possibility of cocirculation of these viruses in other outbreaks.

Influenza virus type A(H3N2) has been isolated from a nursing-home outbreak near Minneapolis-St. Paul, Minnesota, where approximately 33 (25%) of the 132 residents were ill between January 16 and January 28. Influenza type B viruses were isolated during the same week from two students in an outbreak of influenza-like illness at the high school in the same community as the nursing home.

Several more states have recently reported their first influenza isolates of the season. West Virginia has reported influenza type A(H3N2) virus; Maryland, Nebraska, and Rhode Island have reported influenza type B virus; and Delaware, Kentucky, North Carolina, and Ohio have reported both influenza type B and influenza type A(H3N2) viruses. Forty-two states and the District of Columbia have now reported influenza virus isolates this season. Thirty-eight states and the District of Columbia have reported type B isolates; 21 have reported type A(H3N2); and one, Hawaii, has reported type A(H1N1).

Tallies of patients with influenza-like illnesses seen by sentinel physicians[§] nationwide continued to increase from an average of 7.6 for the reporting week ending January 15, to an average of 9.2 for the week ending January 22.

Pneumonia and influenza (P&I) deaths reported from the 121 U.S. cities for the week ending February 1 represent 5.8% of total deaths, compared with 6.1% reported for the preceding week.

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[§]Cases reported by those members of the American Academy of Family Physicians Research Panel who serve as sentinel physicians for influenza.

Reye Syndrome — United States, 1985

For the 1985 surveillance year,* 91 cases of Reye syndrome (RS) meeting CDC's case definition† were reported. Although delayed reports through June 1986 may increase the

*For surveillance purposes, the Reye syndrome year extends from December 1 through November 30 (i.e., the 1985 year runs from December 1, 1984, through November 30, 1985). The data for 1985 are preliminary and include cases reported as of January 15, 1986.

†The CDC case definition is (1) acute noninflammatory encephalopathy documented clinically by an alteration in consciousness and, if available, a record of cerebrospinal fluid containing eight leukocytes or fewer per mm^3, or by histologic specimen demonstrating cerebral edema without perivascular or meningeal inflammation; (2) hepatopathy documented by either a liver biopsy or autopsy considered to be diagnostic of Reye syndrome, or a threefold or greater rise in the levels of either the SGOT, SGPT, or serum ammonia; and (3) no more reasonable explanation for the cerebral or hepatic abnormalities.

Reye Syndrome — Continued

number of cases for 1985, the provisional 1985 total is less than half the lowest annual total reported through the National Reye Syndrome Surveillance System (NRSSS) since its initiation in December 1973 (Table 1).

Cases were reported from 31 states. The sex and race distributions were similar to previous years. Of patients for whom this information was reported, 52% were female; 89%, white; 7%, black; and 4%, of Asian or American Indian extraction. Fifty-three percent of RS patients were 0-4 years of age; 20%, 5-9 years of age; 19%, 10-14 years of age; 5%, 15-19 years of age; and 3%, 20 years of age or older. The reported incidence of RS among children in all age groups has decreased in recent years (Figure 4).

Most patients (57%) reported thus far for 1985 were hospitalized in January and February. This primarily reflected the increased incidence of viral respiratory infections among children during those months. The predominant influenza isolate during this period was influenza A(H3N2) (*1*).

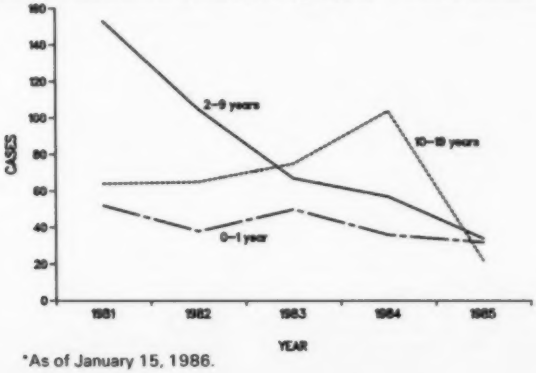
TABLE 1. Reported cases and incidence* of Reye syndrome (RS) — United States, 1974 and 1977-1985

Year	Predominant influenza strains	RS cases	Incidence	Case-fatality rate (%)
1974	B	379	0.58	41
1977	B	454	0.71	42
1978	A(H3N2)	236	0.37	29
1979	A(H1N1)	389	0.62	32
1980	B	555	0.88	23
1981	A(H3N2)	297	0.47	30
1982	B	213	0.34	35
1983	A(H3N2)	198	0.32	31
1984	A(H1N1) and B	204	0.33	26
1985†	A(H3N2)	91	0.15	32

*Cases/100,000 population under 18 years of age.

†Data for 1985 are preliminary and based on case reports received as of January 15, 1986.

FIGURE 4. Reported Reye syndrome cases, by age group — United States, 1981-1985*



*As of January 15, 1986.

Reye Syndrome — Continued

For 84 (92%) of the patients, a prodromal illness occurring within 2 weeks before the onset of vomiting or neurologic symptoms of RS was reported. Fourteen (17%) of these had varicella reported as their prodromal illness, compared with 26 (13%) patients in 1984. For the remainder of patients in 1985, the prodromal illness was characterized by respiratory symptoms (67%), diarrhea without respiratory symptoms (8%), or other signs and symptoms, including fever alone (7%).

The largest percentages of patients were admitted to hospitals in the three precomatose stages of RS: stage I—39%; stage II—28%; or stage 0—9%. The deepest stages of RS attained by the hospitalized patients were: stage I—36% of patients; stage II—23%; stage III—5%; stage IV—4%; and stage V—32%. The short-term outcomes were reported for 87 (96%) of the RS patients; 28 died, for a case-fatality rate of 32%.

Reported by Div of Viral Diseases, Center for Infectious Diseases, CDC.

(Continued on page 73)

TABLE I. Summary—cases specified notifiable diseases, United States

Disease	5th Week Ending			Cumulative, 5th Week Ending		
	Feb. 1, 1986	Feb. 2, 1985	Median 1981-1985	Feb. 1, 1986	Feb. 2, 1985	Median 1981-1985
Acquired Immunodeficiency Syndrome (AIDS)	209	156	N	1,070	513	N
Aseptic meningitis	63	57	90	364	332	433
Encephalitis: Primary (arthropod-borne & unspec.)	14	18	18	69	67	78
Post-infectious	3	1	1	6	10	7
Gonorrhea: Civilian	15,146	17,076	17,887	76,114	74,868	91,417
Military	238	424	425	1,207	1,494	2,415
Hepatitis: Type A	434	490	490	2,017	1,788	1,874
Type B	366	553	410	1,975	2,017	2,017
Non A, Non B	37	75	N	226	339	N
Unspecified	77	94	145	425	368	665
Legionellosis	17	14	N	52	70	N
Leprosy	-	1	2	27	15	15
Malaria	11	13	14	53	53	57
Measles: Total*	26	16	16	79	49	49
Indigenous	24	5	N	74	21	N
Imported	2	11	N	5	28	N
Meningococcal infections: Total	80	71	64	280	239	277
Civilian	80	71	64	279	239	269
Military	-	-	-	1	-	1
Mumps	42	52	62	176	233	372
Pertussis	19	19	19	123	108	95
Rubella (German measles)	2	2	23	21	19	74
Syphilis (Primary & Secondary): Civilian	473	542	645	2,047	2,250	2,915
Military	6	3	3	15	15	34
Toxic Shock syndrome	7	8	N	22	32	N
Tuberculosis	359	293	442	1,390	1,359	1,720
Tularemia	1	5	3	7	15	11
Typhoid fever	1	6	6	20	13	32
Typhus fever, tick-borne (RMSF)	1	-	-	5	1	8
Rabies, animal	68	70	81	359	308	389

TABLE II. Notifiable diseases of low frequency, United States

	Cum 1986		Cum 1986
Anthrax	-	Leptospirosis (Va. 1)	6
Botulism: Foodborne	-	Plague	-
Infant (Del. 1)	6	Poliomyelitis, Paralytic	-
Other	-	Psittacosis (N. Mex. 1)	2
Brucellosis	4	Rabies, human	-
Cholera	-	Tetanus	2
Congenital rubella syndrome	1	Trichinosis	7
Congenital syphilis, ages < 1 year	-	Typhus fever, flea-borne (endemic, murine)	-
Diphtheria	-		

*Two of the 26 reported cases for this week were imported from a foreign country or can be directly traceable to a known internationally imported case within two generations.

TABLE III. Cases of specified notifiable diseases, United States, weeks ending February 1, 1986 and February 2, 1985 (5th Week)

Reporting Area	AIDS	Aseptic Menin-gitis	Encephalitis		Gonorrhea (Civilian)		Hepatitis (Viral), by type				Legionel-losis	Leprosy
			Primary	Post-in-fectious			A	B	NA,NB	Unspeci-fied		
	Cum. 1986	1986	Cum. 1986	Cum. 1986	Cum. 1986	Cum. 1985	1986	1986	1986	1986	1986	Cum. 1986
UNITED STATES	1,070	63	69	6	76,114	74,868	434	366	37	77	17	27
NEW ENGLAND	26	5	3	-	1,656	2,566	10	42	4	7	-	-
Maine	1	-	-	-	86	101	-	9	1	-	-	-
N.H.	1	2	1	-	36	47	-	-	-	-	-	-
Vt.	1	-	-	-	25	26	-	1	-	-	-	-
Mass.	9	3	1	-	743	843	7	29	2	7	-	-
R.I.	3	-	-	-	139	186	1	3	1	-	-	-
Conn.	11	-	1	-	627	1,363	2	-	-	-	-	-
MID. ATLANTIC	397	13	10	-	14,921	9,864	34	25	1	2	-	4
Upstate N.Y.	23	7	4	-	1,321	958	30	13	-	1	-	-
N.Y. City	257	-	3	-	9,843	4,278	-	-	-	-	-	4
N.J.	70	6	1	-	1,490	1,352	-	-	-	-	-	-
Pa.	47	-	2	-	2,267	3,276	4	12	1	1	-	-
E.N. CENTRAL	58	8	11	1	9,829	10,544	15	44	1	2	3	1
Ohio	27	3	6	1	2,932	2,798	3	20	1	-	1	-
Ind.	5	3	-	-	1,647	959	3	4	-	1	-	-
Ill.	16	-	-	-	1,481	3,601	2	3	-	-	-	-
Mich.	10	2	5	-	3,155	3,019	7	17	-	1	2	1
Wis.	-	-	-	-	614	167	-	-	-	-	-	-
W.N. CENTRAL	28	3	-	1	3,812	4,299	37	11	2	3	2	1
Minn.	14	-	-	-	590	639	1	3	1	-	-	-
Iowa	2	-	-	-	394	449	-	1	-	-	1	-
Mo.	5	-	-	-	1,846	1,952	3	5	-	2	1	-
N. Dak.	3	-	-	-	45	24	-	-	-	-	-	-
S. Dak.	-	1	-	-	59	91	30	-	1	-	-	-
Nebr.	2	-	-	-	152	399	1	-	-	-	-	-
Kans.	2	2	-	1	726	745	2	2	-	1	-	1
S. ATLANTIC	168	17	13	4	15,640	15,423	32	94	9	3	5	-
Del.	6	1	2	-	309	355	2	-	1	-	-	-
Md.	20	3	5	-	2,210	2,089	-	2	-	-	-	-
D.C.	18	-	-	-	1,685	1,257	-	6	-	-	-	-
Va.	17	5	3	1	1,507	1,657	2	14	2	-	-	-
W. Va.	-	-	-	-	259	255	3	7	-	-	1	-
N.C.	5	4	2	-	2,583	3,008	1	17	1	1	1	-
S.C.	8	-	-	-	1,608	2,031	1	15	-	-	1	-
Ga.	2	2	-	-	-	-	9	15	3	-	1	-
Fla.	92	2	1	3	5,479	4,771	14	18	2	2	1	-
E.S. CENTRAL	18	4	10	-	6,732	6,616	2	18	3	-	-	-
Ky.	5	3	5	-	783	715	2	3	1	-	-	-
Tenn.	10	-	1	-	2,635	2,577	-	7	1	-	-	-
Ala.	-	1	4	-	1,862	2,035	-	6	1	-	-	-
Miss.	3	-	-	-	1,452	1,289	-	2	-	-	-	-
W.S. CENTRAL	93	4	1	-	9,972	11,720	36	23	1	18	-	-
Ark.	5	-	-	-	958	1,120	1	1	-	-	-	-
La.	14	1	-	-	1,698	2,345	2	3	-	-	-	-
Okla.	2	1	-	-	1,160	1,166	9	2	-	4	-	-
Tex.	72	2	1	-	6,156	7,089	24	17	1	14	-	-
MOUNTAIN	12	3	4	-	2,409	2,633	38	22	4	9	2	-
Mont.	-	-	-	-	61	80	5	-	1	-	-	-
Idaho	1	-	-	-	74	82	4	1	-	-	-	-
Wyo.	2	-	1	-	49	74	-	-	-	-	-	-
Colo.	1	2	-	-	608	759	-	4	2	6	-	-
N. Mex.	1	-	-	-	272	310	9	10	-	2	1	-
Ariz.	2	-	2	-	703	806	-	-	-	-	-	-
Utah	1	1	1	-	111	123	11	4	1	1	1	-
Nev.	4	-	-	-	531	399	9	3	-	-	-	-
PACIFIC	270	6	17	-	11,143	11,203	230	87	12	33	5	21
Wash.	19	-	1	-	705	832	17	4	1	-	2	-
Oreg.	7	-	-	-	442	662	61	1	4	2	-	-
Calif.	241	6	14	-	9,555	9,262	152	78	7	31	-	21
Alaska	-	-	2	-	322	290	-	3	-	-	1	-
Hawaii	3	-	-	-	119	157	-	1	-	-	2	-
Guam	-	U	-	-	-	7	U	U	U	U	U	-
P.R.	5	U	-	-	157	419	U	U	U	U	U	-
V.I.	-	-	-	-	18	39	-	-	-	-	-	-
Pac. Trust Terr.	-	U	-	-	-	72	U	U	U	U	U	-
Amer. Samoa	-	U	-	-	-	-	U	U	U	U	U	-

N: Not notifiable U: Unavailable

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending February 1, 1986 and February 2, 1985 (5th Week)

Reporting Area	Malaria	Measles (Rubeola)					Meningococcal Infections	Mumps		Pertussis			Rubella		
		Indigenous		Imported *		Total									
	Cum. 1986	1986	Cum. 1986	1986	Cum. 1986	Cum. 1985	Cum. 1986	1986	Cum. 1986	1986	Cum. 1986	Cum. 1985	1986	Cum. 1986	Cum. 1985
UNITED STATES	53	24	74	2	5	49	280	42	176	19	123	108	2	21	19
NEW ENGLAND	1	-	-	-	-	-	22	-	3	3	12	1	-	-	2
Maine	-	-	-	-	-	-	5	-	-	-	1	-	-	-	-
N.H.	-	-	-	-	-	-	-	-	1	-	5	-	-	-	1
Vt.	-	-	-	-	-	-	4	-	-	-	-	1	-	-	-
Mass.	1	-	-	-	-	-	5	-	-	2	4	-	-	-	1
R.I.	-	-	-	-	-	-	1	-	2	1	1	-	-	-	-
Conn.	-	-	-	-	-	-	7	-	-	-	1	-	-	-	-
MID ATLANTIC	8	-	11	-	2	1	40	5	13	5	28	19	1	6	5
Upstate N.Y.	-	-	-	-	2	1	8	1	5	3	19	7	1	6	1
N.Y. City	3	-	11	-	-	-	8	-	-	-	-	4	-	-	3
N.J.	4	-	-	-	-	-	6	1	3	-	-	-	-	-	1
Pa.	1	-	-	-	-	-	18	3	5	2	9	8	-	-	-
E.N. CENTRAL	1	-	-	-	-	17	28	24	76	-	17	33	-	1	-
Ohio	1	-	-	-	-	-	13	14	23	-	11	8	-	-	-
Ind.	-	-	-	-	-	-	5	1	1	-	3	10	-	-	-
Ill.	-	-	-	-	-	1	3	3	32	-	-	2	-	-	-
Mich.	-	-	-	-	-	-	7	6	20	-	1	1	-	-	-
Wis.	-	-	-	-	-	16	-	-	-	-	2	12	-	1	-
W.N. CENTRAL	-	19	43	-	-	-	12	1	10	1	12	7	-	-	4
Minn.	-	-	-	-	-	-	-	-	-	-	5	1	-	-	-
Iowa	-	-	-	-	-	-	4	1	4	-	2	-	-	-	-
Mo.	-	-	-	-	-	-	6	-	1	1	1	2	-	-	-
N. Dak.	-	-	-	-	-	-	-	-	-	-	1	2	-	-	-
S. Dak.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nebr.	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Kans.	-	19	43	-	-	-	2	-	5	-	3	1	-	-	4
S. ATLANTIC	9	-	-	-	-	2	43	-	18	2	16	12	1	1	1
Del.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Md.	2	-	-	-	-	-	3	-	2	-	4	2	-	-	-
D.C.	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-
Va.	5	-	-	-	-	-	4	-	4	1	3	-	-	-	-
W. Va.	-	-	-	-	-	-	1	-	7	-	-	-	-	-	-
N.C.	1	-	-	-	-	-	6	-	1	-	5	4	-	-	-
S.C.	-	-	-	-	-	-	8	-	2	-	1	-	-	-	1
Ga.	-	-	-	-	-	-	6	-	1	1	2	1	-	-	-
Fla.	1	-	-	-	-	1	14	-	1	-	1	5	1	1	-
E.S. CENTRAL	1	-	-	-	-	-	29	-	3	-	5	2	-	1	1
Ky.	1	-	-	-	-	-	17	-	2	-	1	-	-	1	1
Tenn.	-	-	-	-	-	-	6	-	1	-	1	1	-	-	-
Ala.	-	-	-	-	-	-	6	-	-	-	3	1	-	-	-
Miss.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.S. CENTRAL	-	-	-	-	-	-	11	7	9	1	1	9	-	-	1
Ark.	-	-	-	-	-	-	-	1	1	-	-	6	-	-	1
La.	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Okla.	-	-	-	-	-	-	3	N	N	1	1	3	-	-	-
Tex.	-	-	-	-	-	-	7	6	8	-	-	-	-	-	-
MOUNTAIN	-	5	6	2	2	18	16	2	25	2	13	3	-	-	-
Mont.	-	-	-	-	-	18	2	1	1	-	-	-	-	-	-
Idaho	-	-	-	-	-	-	1	-	-	-	2	-	-	-	-
Wyo.	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Colo.	-	-	-	-	-	-	1	-	1	2	3	1	-	-	-
N. Mex.	-	5	6	2 †	2	-	3	N	N	-	4	1	-	-	-
Ariz.	-	-	-	-	-	-	5	-	20	-	4	1	-	-	-
Utah	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-
Nev.	-	-	-	-	-	-	2	1	2	-	-	-	-	-	-
PACIFIC	33	-	14	-	1	11	79	3	19	5	19	22	-	12	5
Wash.	2	-	-	-	-	1	9	-	-	1	6	1	-	-	-
Oreg.	2	-	-	-	-	-	7	N	N	-	-	4	-	-	-
Calif.	29	-	13	-	1	9	60	2	17	3	11	15	-	12	5
Alaska	-	-	-	-	-	-	3	1	1	1	1	-	-	-	-
Hawaii	-	-	1	-	-	1	-	-	1	-	1	2	-	-	-
Guam	-	U	-	U	-	7	-	U	-	U	-	-	U	-	-
P.R.	-	U	-	U	-	20	-	U	2	U	2	1	U	-	2
V.I.	-	-	-	-	-	3	-	1	2	-	-	-	-	-	-
Pac. Trust Terr.	-	U	-	U	-	-	-	U	-	U	-	-	U	-	-
Amer. Samoa	-	U	-	U	-	-	-	U	-	U	-	-	U	-	-

*For measles only, imported cases includes both out-of-state and international importations.

N: Not notifiable U: Unavailable †International §Out-of-state

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending February 1, 1986 and February 2, 1985 (5th Week)

Reporting Area	Syphilis (Civilian) (Primary & Secondary)		Toxic-shock Syndrome	Tuberculosis		Tula-remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1986	Cum. 1985	1986	Cum. 1986	Cum. 1985	Cum. 1986	Cum. 1986	Cum. 1986	Cum. 1986
UNITED STATES	2,047	2,250	7	1,390	1,359	7	20	5	359
NEW ENGLAND	58	55	-	44	53	-	1	1	-
Maine	3	2	-	6	2	-	-	-	-
N.H.	1	1	-	-	5	-	-	-	-
Vt.	1	-	-	2	-	-	-	-	-
Mass.	34	26	-	19	32	-	1	1	-
R.I.	1	1	-	-	6	-	-	-	-
Conn.	18	25	-	17	8	-	-	-	-
MID ATLANTIC	340	316	-	278	304	-	1	-	43
Upstate N.Y.	18	15	-	45	34	-	-	-	5
N.Y. City	238	200	-	130	170	-	1	-	-
N.J.	63	62	-	66	15	-	-	-	-
Pa.	21	39	-	37	85	-	-	-	38
E.N. CENTRAL	44	118	2	211	156	-	2	-	7
Ohio	7	10	-	25	30	-	-	-	-
Ind.	18	8	-	16	19	-	-	-	1
Ill.	9	77	-	110	73	-	-	-	-
Mich.	6	18	2	48	25	-	2	-	2
Wis.	4	5	-	12	9	-	-	-	4
W.N. CENTRAL	17	23	4	20	29	4	-	-	30
Minn.	3	6	-	2	4	-	-	-	-
Iowa	3	4	2	2	12	1	-	-	11
Mo.	9	8	-	13	5	3	-	-	2
N. Dak.	2	-	-	2	1	-	-	-	17
S. Dak.	-	1	-	-	2	-	-	-	-
Nebr.	-	1	1	-	2	-	-	-	-
Kans.	-	3	1	1	3	-	-	-	-
S. ATLANTIC	408	552	-	260	262	1	1	2	74
Del.	2	3	-	-	4	-	-	-	-
Md.	41	59	-	11	19	-	-	-	52
D.C.	33	25	-	17	18	-	-	-	-
Va.	54	32	-	8	9	-	-	-	10
W. Va.	3	-	-	7	10	-	-	-	1
N.C.	53	68	-	38	24	-	1	2	-
S.C.	85	76	-	40	36	-	-	-	2
Ga.	-	-	-	28	30	1	-	-	9
Fla.	137	289	-	111	112	-	-	-	-
E.S. CENTRAL	173	215	-	145	117	1	-	2	19
Ky.	12	9	-	46	21	1	-	1	3
Tenn.	59	36	-	37	31	-	-	-	9
Ala.	58	88	-	62	53	-	-	1	7
Miss.	44	82	-	-	12	-	-	-	-
W.S. CENTRAL	490	477	-	119	102	1	-	-	38
Ark.	19	32	-	19	6	1	-	-	7
La.	80	108	-	45	41	-	-	-	-
Okla.	15	23	-	6	16	-	-	-	5
Tex.	376	314	-	49	39	-	-	-	26
MOUNTAIN	81	96	1	27	20	-	1	-	99
Mont.	-	-	-	-	2	-	-	-	43
Idaho	1	1	-	1	-	-	-	-	-
Wyo.	-	3	-	-	-	-	-	-	42
Colo.	26	23	-	-	-	-	-	-	-
N. Mex.	10	6	-	6	2	-	-	-	2
Ariz.	29	58	-	14	13	-	-	-	12
Utah	3	1	1	-	-	-	1	-	-
Nev.	12	4	-	6	3	-	-	-	-
PACIFIC	436	398	-	286	316	-	14	-	49
Wash.	-	14	-	18	7	-	2	-	-
Oreg.	15	15	-	9	8	-	-	-	-
Calif.	414	362	-	244	275	-	11	-	48
Alaska	-	-	-	-	18	-	-	-	1
Hawaii	7	7	-	15	8	-	1	-	-
Guam	-	1	U	-	3	-	-	-	-
P.R.	57	105	U	20	16	-	-	-	4
V.I.	-	-	U	-	-	-	-	-	-
Pac. Trust Terr.	-	9	U	-	5	-	-	-	-
Amer. Samoa	-	-	U	-	-	-	-	-	-

U: Unavailable

TABLE IV. Deaths in 121 U.S. cities,* week ending February 1, 1986 (5th Week)

Reporting Area	All Causes, By Age (Years)						P&I** Total
	All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	674	459	141	35	13	25	61
Boston, Mass.	190	118	46	13	3	10	28
Bridgeport, Conn.	41	28	7	3	2	1	4
Cambridge, Mass.	24	23	1	-	-	-	6
Fall River, Mass.	27	19	7	1	-	-	1
Hartford, Conn.	71	38	21	8	1	3	6
Lowell, Mass.	23	22	-	1	-	-	-
Lynn, Mass.	21	17	2	1	1	-	1
New Bedford, Mass.	20	18	2	-	-	-	1
New Haven, Conn.	43	30	7	3	3	-	-
Providence, R.I.	72	44	21	2	-	5	4
Somerville, Mass.	9	5	4	-	-	-	-
Springfield, Mass.	44	25	10	3	1	5	6
Waterbury, Conn.	32	27	4	1	-	-	1
Worcester, Mass.	57	45	9	-	2	1	3
MID. ATLANTIC	3,440	2,350	706	260	60	64	188
Albany, N.Y.	55	32	16	4	-	3	-
Allentown, Pa.§	22	22	-	-	-	-	-
Buffalo, N.Y.	104	72	18	9	1	4	7
Camden, N.J.	42	28	9	2	1	2	1
Elizabeth, N.J.	34	23	6	2	1	2	2
Erie, Pa.†	38	30	7	-	1	-	2
Jersey City, N.J.	56	36	10	9	-	1	1
N.Y. City, N.Y.	1,780	1,191	376	164	29	20	80
Newark, N.J.	62	32	11	12	3	4	4
Paterson, N.J.	41	25	10	3	-	3	1
Philadelphia, Pa.	632	434	140	30	12	16	37
Pittsburgh, Pa.†	107	71	29	4	2	1	5
Reading, Pa.	41	35	4	1	-	1	9
Rochester, N.Y.	140	104	28	5	2	1	10
Schenectady, N.Y.	34	30	-	2	1	1	-
Scranton, Pa.†	27	24	2	1	-	-	5
Syracuse, N.Y.	100	62	26	6	5	1	12
Trenton, N.J.	65	53	4	5	2	1	-
Utica, N.Y.	14	10	2	-	-	2	2
Yonkers, N.Y.	46	36	8	1	-	1	10
E.N. CENTRAL	2,507	1,799	406	138	67	95	135
Akron, Ohio	80	60	14	3	2	1	2
Canton, Ohio	25	15	10	-	-	-	2
Chicago, Ill.§	553	402	11	26	16	37	16
Cincinnati, Ohio	159	109	28	11	5	6	14
Cleveland, Ohio	173	121	34	12	4	2	3
Columbus, Ohio	215	144	47	14	2	8	8
Dayton, Ohio	126	83	35	5	1	2	10
Detroit, Mich.	242	134	63	23	9	13	6
Evansville, Ind.	55	42	7	2	1	3	5
Fort Wayne, Ind.	53	39	9	2	1	2	7
Gary, Ind.	13	6	5	-	1	1	-
Grand Rapids, Mich.	33	25	4	3	1	-	3
Indianapolis, Ind.	210	131	45	17	10	7	7
Madison, Wis. §	36	31	-	2	1	2	4
Milwaukee, Wis.	156	119	24	5	7	1	13
Peoria, Ill.	50	35	5	2	5	3	5
Rockford, Ill.	50	37	8	2	1	2	2
South Bend, Ind.	44	36	7	1	-	-	1
Toledo, Ohio	162	117	34	6	-	4	14
Youngstown, Ohio	72	53	16	2	-	1	3
W.N. CENTRAL	822	572	159	43	17	31	50
Des Moines, Iowa	64	51	5	5	1	2	7
Duluth, Minn.	37	30	3	2	1	1	-
Kansas City, Kans.	24	19	4	1	-	-	-
Kansas City, Mo.	131	87	27	7	4	6	7
Lincoln, Nebr.	42	27	13	1	1	-	6
Minneapolis, Minn.	105	78	12	6	5	4	10
Omaha, Nebr.	101	63	26	6	2	4	1
St. Louis, Mo.	151	112	30	6	-	3	6
St. Paul, Minn.	79	51	17	5	1	5	6
Wichita, Kans.	88	54	22	4	2	6	7

Reporting Area	All Causes, By Age (Years)						P&I** Total
	All Ages	≥65	45-64	25-44	1-24	<1	
S. ATLANTIC	1,487	961	323	115	47	40	79
Atlanta, Ga.	147	87	40	13	4	3	1
Baltimore, Md.	224	133	54	25	10	2	9
Charlotte, N.C.	81	51	17	4	5	4	10
Jacksonville, Fla.	151	94	40	8	5	4	13
Miami, Fla. §	141	130	1	2	5	3	1
Norfolk, Va.	74	47	13	9	2	3	8
Richmond, Va.	93	44	32	8	3	6	6
Savannah, Ga.	65	46	13	4	1	1	7
St. Petersburg, Fla.	118	101	11	5	-	1	9
Tampa, Fla.	98	51	32	4	5	5	5
Washington, D.C.	256	147	64	32	6	7	10
Wilmington, Del.	39	30	6	1	1	1	-
E.S. CENTRAL	894	584	195	61	25	29	54
Birmingham, Ala.	163	104	40	12	2	5	8
Chattanooga, Tenn.	59	37	13	2	-	7	6
Knoxville, Tenn.	89	64	16	4	2	3	11
Louisville, Ky.	120	81	25	7	5	2	7
Memphis, Tenn.	201	135	40	19	5	2	13
Mobile, Ala.	106	81	17	4	4	-	2
Montgomery, Ala.	51	29	15	4	3	-	-
Nashville, Tenn.	105	53	29	9	4	10	7
W.S. CENTRAL	1,530	953	334	125	53	65	83
Austin, Tex.	74	45	21	5	1	2	4
Baton Rouge, La.	46	30	11	4	1	-	2
Corpus Christi, Tex.	33	24	4	2	1	2	5
Dallas, Tex.	240	141	55	24	9	11	7
El Paso, Tex.	99	62	21	6	3	7	9
Fort Worth, Tex.	113	73	22	9	4	5	5
Houston, Tex.	364	214	93	30	11	16	11
Little Rock, Ark.	60	40	7	6	1	6	9
New Orleans, La.	120	78	27	11	3	1	-
San Antonio, Tex.	196	124	39	15	13	5	14
Shreveport, La.	76	49	17	5	2	3	6
Tulsa, Okla.	109	73	17	8	4	7	11
MOUNTAIN	699	463	141	49	22	23	51
Albuquerque, N.Mex.	103	68	18	7	7	2	8
Colo. Springs, Colo.	43	31	6	3	2	1	5
Denver, Colo.	110	63	24	9	3	11	4
Las Vegas, Nev.	64	40	19	4	1	-	5
Ogden, Utah	24	20	2	-	1	1	6
Phoenix, Ariz.	156	90	38	14	7	7	6
Pueblo, Colo.	26	20	5	1	-	-	5
Salt Lake City, Utah	45	31	5	7	1	1	1
Tucson, Ariz.	128	100	24	4	-	-	11
PACIFIC	2,242	1,471	449	198	62	51	142
Berkeley, Calif.	19	15	2	1	1	-	1
Fresno, Calif.	60	42	15	1	1	1	8
Glendale, Calif.	51	34	11	5	1	-	5
Honolulu, Hawaii	84	56	15	5	7	1	7
Long Beach, Calif.	76	50	18	4	1	3	11
Los Angeles, Calif.	791	511	141	85	30	14	28
Oakland, Calif.	75	42	25	5	2	1	1
Pasadena, Calif.	39	31	4	3	-	1	2
Portland, Oreg.	136	100	23	7	2	4	6
Sacramento, Calif.	129	78	37	9	2	3	6
San Diego, Calif.	167	106	39	11	5	6	22
San Francisco, Calif.	170	94	47	22	2	4	11
San Jose, Calif.	171	122	22	18	3	6	17
Seattle, Wash.	172	116	33	14	4	5	7
Spokane, Wash.	60	42	10	6	1	1	7
Tacoma, Wash.	42	32	7	2	-	1	3
TOTAL	14,295	9,612	2,854	1,025	366	423	833

† †

* Mortality data in this table are voluntarily reported from 121 cities in the United States, most of which have populations of 100,000 or more. A death is reported by the place of its occurrence and by the week that the death certificate was filed. Fetal deaths are not included.

** Pneumonia and influenza.

† Because of changes in reporting methods in these 3 Pennsylvania cities, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.

†† Total includes unknown ages.

§ Data not available. Figures are estimates based on average of past 4 weeks.

Reye Syndrome – Continued

Editorial Note: The NRSSS provides crude annual comparisons of RS activity, although the number of cases reported underestimates true RS incidence and mortality. Because state health departments and CDC are more likely to become aware of fatal cases, the reported case-fatality ratios are probably overestimated.

During the 1985 surveillance year, the annual RS incidence was the lowest reported since the NRSSS was initiated. In previous years, the RS incidence, at least in part, has reflected the intensity and type of influenza activity. By all surveillance parameters, 1985 influenza activity was comparable in intensity to 1984, and the activity was greater than in 1982 or 1983. However, the predominant isolate was influenza A(H3N2), which has been generally associated with fewer cases of RS than influenza types B or A(H1N1). Nonetheless, the number of RS cases reported in 1985 was markedly lower than in the 3 previous years (1978, 1981, and 1983) that influenza A(H3N2) predominated (Table 1). In addition, varicella-associated RS cases reported annually declined by over 60% during 1981-1984, and the decline appears to be continuing during 1985, despite relatively stable annual varicella activity.

During 1981-1984, the number of reported RS cases consistently declined among children under 10 years of age; no such decrease occurred in the number of patients 10-19 years of age (*2*). During 1985, the continued decrease in RS incidence among patients 0-9 years of age was accompanied by an even larger decrease in incidence among patients 10-19 years of age (Figure 1).

Between 1981 and 1985, a less rapid decrease in RS incidence among children under 2 years of age has led to an increasing proportion of RS cases in this age group. This may be related, in part, to a long-standing difficulty in the diagnosis of RS in young children. It may be particularly difficult to distinguish RS from anoxic encephalopathy and inborn errors of metabolism in these children (*3,4*). At a National Institutes of Health Consensus Development Conference on the Diagnosis and Treatment of Reye Syndrome, it was recommended that, although RS diagnosis can be made in most patients without a liver biopsy, biopsy should be considered in very young children (*5*). It has been suggested, however, that the pathologic changes seen may not always reliably differentiate RS from inborn errors of metabolism (*6*). Recently, the specificity of light microscopy changes on postmortem examination considered to be characteristic of RS has been challenged (*7*). Thus, before the diagnosis is established, the possibility of other more reasonable explanations for the cerebral and hepatic abnormalities should be explored, particularly in infants and young children. Histochemical staining and electron-microscopic examination of the liver, as well as a serum amino-acid profile, may help increase the specificity of diagnosis (*8,9*).

The intensity of RS surveillance usually depends partially on the awareness of the illness among the public and medical personnel and the ease and perceived importance of reporting cases. The low reported RS incidence in 1985 occurred during widespread publicity about the probable increased risk of RS associated with the use of aspirin for teenagers, as well as for younger children, with influenza-like illnesses or chickenpox.

Following the results of the pilot phase of the U.S. Public Health Service study on RS and medications (*10*), the U.S. Food and Drug Administration has proposed that oral over-the-counter medicine containing aspirin add a label reading: WARNING: Children and teenagers should not use this medicine for chickenpox or flu symptoms before a doctor is consulted about Reye syndrome, a rare but serious disease.

For the 1985-1986 influenza season, increasing numbers of states are reporting influenza virus isolates, predominantly types B and A(H3N2). Physicians and other appropriate personnel in the medical community are encouraged to continue reporting RS cases to CDC through

Reye Syndrome — Continued

their local and state health departments. RS case-report forms can be obtained from state health departments or the Epidemiology Office, Division of Viral Diseases, Center for Infectious Diseases, CDC, Atlanta, Georgia 30333.

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Tuberculosis — United States, 1985 — and the Possible Impact of Human T-Lymphotropic Virus Type III/ Lymphadenopathy-Associated Virus Infection

In 1985, a provisional total of 21,801 tuberculosis cases was reported to CDC, a 2.0% decline from the 1984 final total of 22,255 cases. Similarly, in 1985, the provisional incidence rate was 9.1 per 100,000 population, a decline of 3.2% from the 1984 final rate of 9.4/100,000. Compared with 1983, the number of reported cases in 1984 declined progressively, so that by week 52, there were 2,139 fewer cumulative provisional reported cases (Figure 5). Compared with 1984, there was no such progressive decline in 1985.

Reported by Div of Tuberculosis Control, Center for Prevention Svcs, CDC.

FIGURE 5. Difference in cumulative tuberculosis cases between 1984 and 1983 and between 1985 and 1984, by *MMWR* reporting week — United States

Tuberculosis – Continued

Editorial Note: From 1975 through 1978, the average annual decrease in reported tuberculosis cases was 5.7%. From 1978 through 1981, when there was a large influx of Southeast Asian refugees, the average decline was only 1.4%. The average decline of 6.7% from 1982 through 1984 indicated that the previous downward trend had resumed. The 2.0% decline in 1985 thus represents another slowing of this trend.

Although the reasons for the relatively small decline in 1985 cases are not fully known, evidence supports the hypothesis that human T-lymphotropic virus type III/lymphadenopathy-associated virus (HTLV-III/LAV) infection of persons infected with the tubercle bacillus has caused an increase in tuberculosis in some areas.

The suspicion that HTLV-III/LAV infection may be responsible for increased tuberculosis morbidity is based on the following:

1. Since other immunosuppressive disorders are associated with an increased risk of developing clinically apparent tuberculosis (*1,2*), there is a theoretical reason to believe that compromised immunity secondary to HTLV-III/LAV infection may favor activation of preexisting latent *Mycobacterium tuberculosis* infection.
2. Some of the areas with the largest tuberculosis morbidity increases this year (New York City, California, Florida, Texas) are also some of the areas that have reported the largest number of acquired immunodeficiency syndrome (AIDS) cases to date (*3*).
3. Data from New York City indicate that increased tuberculosis morbidity is occurring in areas of the city where most AIDS cases have occurred. Matching the New York City tuberculosis and AIDS case registers has revealed increasing numbers of AIDS patients with histories of tuberculosis. An increasing number of persons with histories of intravenous drug abuse—a known risk factor for AIDS—have been diagnosed as having tuberculosis (*4*).
4. In Dade County, Florida, a substantial number of persons with AIDS either had tuberculosis at the time AIDS was diagnosed or had it within the 18 months preceding the AIDS diagnosis (*5*). Based on an analysis currently in progress, 109 (10.0%) of the 1,094 AIDS patients reported to CDC from Florida through December 31, 1985, have also been diagnosed with tuberculosis.

To better understand the problem and to design the most effective and efficient program strategies, it will be essential to establish as soon as possible: (1) the proportion of tuberculosis patients who also have AIDS; (2) the proportion of specific subpopulations with tuberculosis that have HTLV-III/LAV infection; (3) the proportion of AIDS patients who have had tuberculosis diagnosed; (4) the relative risk among persons with both tuberculosis infection and HTLV-III/LAV infection of developing clinical tuberculosis, compared with suitable controls with tuberculous infection; (5) whether patients with HTLV-III/LAV infection and tuberculosis are more or less likely to transmit tuberculosis infection to others; (6) the validity of tuberculin skin-test results for persons with AIDS or HTLV-III/LAV infection; and (7) the efficacy of current treatment regimens among patients with HTLV-III/LAV infection and tuberculosis.

CDC's Division of Tuberculosis Control, Center for Prevention Services, is working closely with the Florida and Dade County health departments and the New York City Department of Health in designing and conducting studies to obtain answers to these questions.

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Epidemiologic Notes and Reports

Apparent Transmission of Human T-Lymphotrophic Virus Type III/ Lymphadenopathy-Associated Virus from a Child to a Mother Providing Health Care

CDC has received a report from state and local health officials of a child with transfusion-associated infection caused by human T-lymphotropic virus type III/lymphadenopathy-associated virus (HTLV-III/LAV), the virus that causes acquired immunodeficiency syndrome (AIDS). The child's mother appears to have been infected with HTLV-III/LAV while providing nursing care that involved extensive unprotected exposure to the child's blood and body secretions and excretions.

The child, a 24-month-old male, was diagnosed as having a congenital intestinal abnormality on day 4 of life. Over the next several months, he had numerous surgical procedures, including colonic and ileal resections, repairs of ostomies, a liver biopsy, and intravascular catheter replacements. The child has been hospitalized 17 months and has required intravenous hyperalimentation and continuous nasogastric feedings throughout his life. His illness was also characterized by frequent bouts of bacterial sepsis, many of which were apparently related to his gastrointestinal disease and indwelling intravascular catheter. Because of anemia due to chronic illness, multiple surgical procedures, gastrointestinal bleeding, and frequent blood drawing, the child required multiple transfusions between birth (February 1984) and early June 1985.

Because of the child's history of both recurrent bacterial sepsis and multiple transfusions, a blood sample was drawn for HTLV-III/LAV antibody in May 1985. This sample, and a second sample obtained 3 months later, were both positive by enzyme immunoassay (EIA); the second sample was tested by Western blot assay and was positive. In June 1985, the ratio of T-helper to T-suppressor lymphocytes (T_H/T_S) was normal (1.6). Serum obtained during an investigation in December 1985 was strongly positive for antibody to HTLV-III/LAV by EIA (absorbance > 2.0, negative cutoff = 0.083, absorbance ratio > 24). Western blot assay at CDC was positive for both the p24 and gp41 bands.* Cultures of the child's peripheral blood lymphocytes, saliva, and stools for HTLV-III/LAV have been negative.

Blood from 26 donors had been transfused to the child between birth and June 1985. One of these donors was a 34-year-old female whose serum, obtained in January 1986, was strongly positive for antibody to HTLV-III/LAV by both EIA (absorbance ratio > 20) and Western blot assay (positive gp41 and equivocal p24 bands).* Her blood was transfused to the child in May 1984 before serologic testing of donors for HTLV-III/LAV was available. All other donors were seronegative.

*Results confirmed by competitive EIA for HTLV-III antibody performed by the Laboratory of Tumor Cell Biology, National Cancer Institute.

HTLV-III/LAV – Continued

The child's 32-year-old mother has been closely involved in the child's care during hospitalization and at home, which has required frequent contact with the child's blood and with other body fluids. Her activities included drawing blood through the child's indwelling catheter at least weekly, removing peripheral intravenous lines occasionally, emptying and changing ostomy bags daily for the 7 months these were in place, inserting rectal tubes daily to facilitate large-bowel clearing, changing diapers and surgical dressings, and changing nasogastric feeding tubes weekly. When interviewed, she did not recall any specific incidents of needlesticks or other parenteral exposures to the child's blood. However, the mother did not wear gloves, and on numerous occasions, her hands became contaminated with blood, feces (which often contained blood), saliva, and nasal secretions. She did not recall having open cuts or an exudative dermatitis on her hands; however, she often did not wash her hands immediately after blood or secretion contact.

In March, June, and October 1985, the mother donated blood; none of her donated blood was given to her child. As part of routine blood-donor screening, the blood was tested for HTLV-III/LAV antibody. She was seronegative by EIA in March and June. In October, a serum sample was repeatedly positive by EIA and was confirmed by Western blot assay. Serum obtained during an investigation in December 1985, and the October 1985 specimen, were both strongly positive by EIA (absorbance ratio > 24) and Western blot assay (positive p24 and gp41 bands) at CDC.* The mother remains clinically well; however, her T_H/T_S ratio was 0.9 (normal > 1.0) when tested in December 1985. Culture of her peripheral blood lymphocytes for HTLV-III/LAV was negative.

Extensive epidemiologic investigations did not reveal any other risk factors for infection in the mother or child. The mother was employed as a paramedic before the child's birth but denied needlestick injuries or exposure to AIDS patients. The child's father is negative for HTLV-III/LAV antibody* and is clinically well with a normal T_H/T_S ratio of 2.4.

Reported by AIDS Program, Center for Infectious Diseases, CDC.

Editorial Note: The child reported here most likely acquired the infection from transfusion of blood donated in May 1984 by a donor later found to be seropositive. The child's mother most likely acquired HTLV-III/LAV infection from her son while providing nursing care that involved extensive contact with his blood and other body secretions and excretions. She did not take precautions, such as wearing gloves, and often failed to wash her hands immediately after exposure.

Epidemiologic investigations did not reveal other risk factors for HTLV-III/LAV infection in the mother. The timing of her seroconversion (between June and October 1985) suggests that her exposure occurred after the birth of her child (February 1984). Limited case reports suggest that the seroconversion period for HTLV-III/LAV is approximately 1-6 months (*1-3*); there are no published reports of seroconversion periods greater than 6 months. Although initial attempts at virus isolation from the mother and child have been negative, the EIAs have been repeatedly reactive from multiple specimens in separate laboratories. The high absorbance ratios and presence of strong bands reacting to specific viral proteins on Western blot assay are most consistent with HTLV-III/LAV infection.

Previous CDC guidelines have emphasized that in hospital, institutional, and home-care settings, health-care workers or other persons providing care for patients with HTLV-III/LAV infection should wear gloves routinely during direct contact with the mucous membranes or nonintact skin of such patients (*4*). They should also wear gloves when handling items soiled with blood or other body secretions or excretions. Additional precautions, such as wearing gowns, masks, or eye coverings, may be appropriate if procedures involving more extensive

HTLV-III/LAV – Continued

contact with blood or other body secretions or excretions are performed. Education and foster care of children infected with HTLV-III/LAV, such as the child reported here, who lack control of their body secretions or excretions require special considerations as outlined previously (*5*).

Transmission of HTLV-III/LAV infection from child to parent has not been previously reported. The contact between the reported mother and child is not typical of the usual contact that could be expected in a family setting. None of the family members of the over 17,000 AIDS patients reported to CDC have been reported to have AIDS, except a small number of sexual partners of patients; children born to infected mothers; or family members who themselves had other established risk factors for AIDS. Seven studies involving over 350 family members of both adults and children with AIDS have not found serologic or virologic evidence of transmission of HTLV-III/LAV infection within families other than among sex partners, children born to infected mothers, or family members with risk factors for AIDS (*6-12*).

Although transmission of HTLV-III/LAV in the health-care setting has been reported, such transmission has been extremely rare. In five separate studies, a total of 1,498 health-care workers have been tested for antibody to HTLV-III/LAV. In these studies, 666 (44.5%) of the workers had direct parenteral (needlestick or cut) or mucous-membrane exposure to patients with AIDS or HTLV-III/LAV infection. Twenty-six persons in these five studies were seropositive when first tested; all but three of these persons belonged to groups recognized to be at increased risk for AIDS (*13-17*).

CDC is aware of only one other case in which HTLV-III/LAV transmission from a patient to a person providing care may have occurred through a nonparenteral route (*18*). In this report from England, a 44-year-old woman, who was not a health-care worker, developed AIDS after she had provided home nursing care for a Ghanaian man who was diagnosed with AIDS at postmortem examination. The care involved prolonged and frequent skin contact with body secretions and excretions. The woman recalled having some small cuts on her hands and an exacerbation of chronic eczema. She denied any sexual contact with the patient.

The occurrences of the case reported here and the English case suggest that HTLV-III/LAV infection may, on rare occasions, be transmitted during unprotected contact with blood or other potentially infectious body secretions or excretions in the absence of known parenteral or sexual exposure to these fluids. Adherence to published guidelines for health-care workers (*4*) should prevent transmission through exposure to blood or body fluids.

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HTLV-III/LAV – Continued

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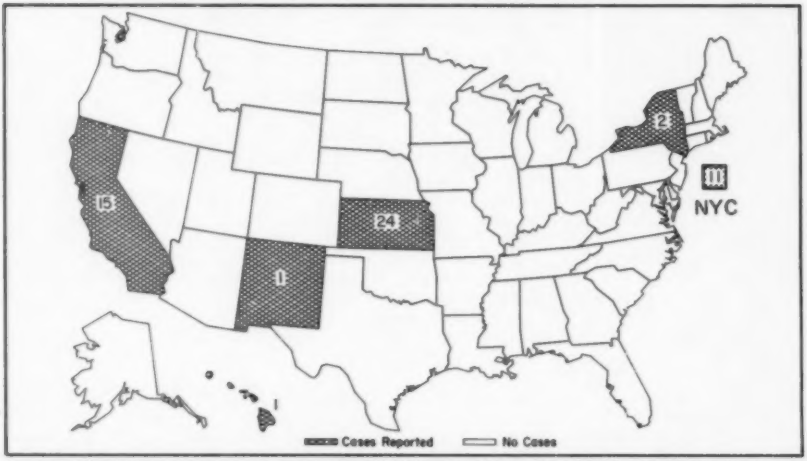
FIGURE I. Reported measles cases — United States, weeks 1-4, 1986



The *Morbidity and Mortality Weekly Report* is prepared by the Centers for Disease Control, Atlanta, Georgia, and available on a paid subscription basis from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, (202) 783-3238.

The data in this report are provisional, based on weekly reports to CDC by state health departments. The reporting week concludes at close of business on Friday; compiled data on a national basis are officially released to the public on the succeeding Friday.

The editor welcomes accounts of interesting cases, outbreaks, environmental hazards, or other public health problems of current interest to health officials. Such reports and any other matters pertaining to editorial or other textual considerations should be addressed to: ATTN: Editor, *Morbidity and Mortality Weekly Report*, Centers for Disease Control, Atlanta, Georgia 30333.

☆U.S. Government Printing Office: 1986-746-149/21040 Region IV

HHS Publication No. (CDC) 86-8017